The Daily Graphic, "the choice of Cambridge seems to be because it is cheap."

All the great observatories of the world are moving upwards.

The Paris Observatory at Meudon has removed from 194 feet to 534 feet.

Sicily (Mount Etna), 155 feet to 9735 feet.

Berlin (Potsdam), 112 feet to 318 feet.

Madras (Kodaikánal), 23 feet to 7745 feet.

Vienna, 787 feet to a neighbouring mountain.

Washington (Mount Vernon), 200 feet to 1725 feet.

Chicago Observatory is 1105 feet, the Lick Observatory 4209 feet, Mount Wilson 5712 feet, Flagstaff 7293 feet, Nice 1240 feet.

It has become imperative, in the interests of the accuracy which modern astronomical observation demands, to take the observations well above ground, mist, and fog; and to remove them to sites as distant as possible from the smoke of towns by day and the glare of their lights by night; and their vibration at all times. Not one of these advantages will be derived from the suggested site which the new Solar Physics Observatory would occupy at Cambridge, which lies in a river valley. The observatory would be near a road; there is the smoke of the town, not to speak of the cement works at Cherry Hinton; and there is the glare of the town's electric lights at night. This is easily perceptible five miles away at Little Shelford. Moreover, the height at which the observatory will be stationed is only 70 feet above sea-level. That is perhaps better than the present site at South Kensington, which is only 27 feet above river-level, but not much. The site which was suggested by the Solar Physics Committee was Fosterdown, near Box Hill, in Surrey. That is 800 feet above the sea, and is one of the best sites for astronomical purposes in England. It has wide horizons, no lights near, no traffic, no smoke. Nor is it very dear. The land is Government land, being part of the ground lately occupied by one of the obsolete forts for the defence of London.

More serious, or at least as serious as the rejection of the Fosterdown site in favour of one at Cambridge, is the proposed dissolution of the integrity of the old Solar Physics Observatory, which will henceforward become a mere branch of Cambridge Observatory. It is a very poor reward for services and work done lasting over a generation. The pioneer observation of the South Kensington Observatory is known all over the world, and has been a model for other observatories to follow. One cannot believe that the astronomical world will hear of its dissolution without disappointment and indignation.—*The Daily Graphic.*

NOTES.

REPLYING to Mr. Sandys in the House of Commons on Monday last, Colonel Seely made an important announcement on the subject of military aviation. He stated that the War Office has a progressive policy in the matter, and has hitherto only hung back because it wants to be quite sure, in buying a great number of machines, that they are of the most useful type. The Service now possesses sixteen aëroplanes of eleven different types, of which seven are biplanes and four monoplanes. It is proposed to pay officers who obtain the Aero Club certificate a sum of 75*l.* towards their expenses, and such officers will be attached to the Army Aëroplane Battalion for a course of special instruction, which will include navigation and map-reading. They will then be expected to pass for a certificate similar to the French superior military certificate. The intention is, finally, to provide an efficient service of aërial scouts both for the Navy and for the Army. One hundred officers will be trained immediately as pilots and observers, and non-commissioned officers and other ranks will also be trained. In the discussion that followed, Mr. R. Gwynne asked whether the War Office intends to subsidise experiments, but no answer was given. As comment on the foregoing, it may be interesting to enumerate what machines the Government actually possesses. They are as follows:—*Biplanes:* one original Wright, presented by the late Hon. C. S. Rolls (never flown, and now dismantled); one Howard Wright, purchased from Captain Maitland (broken up); one Paulhan (broken up, capable of repair); one de Havilland (worn out, must be entirely rebuilt); one experimental Voisin Canard type (broken up); one Farman (out of date); one Bréguet; and several Bristols. *Monoplanes:* four Valkyries, presented by Mr. Barber (one broken and two without motors, leaving one effective); one Nieuport; and one Blériot (formerly the property of the late Lieut. Cammell). With regard to the French superior military certificate, the rules for this were issued by General Roques last June, and lay down that military aëroplane pilots must possess the Aero Club (F.A.I.) certificate and the military aviator's certificate. The latter is granted to officers, non-commissioned officers, and men of the regular or of the reserve and territorial army who, possessing the Aero Club certificate, have passed a series of tests to be determined each year in accordance with aëronautical progress. For the present year candidates must have accomplished three closed circuits at a height of at least 300 metres, each circuit comprising a cross-country flight of 50 metres, the landing being made at the starting place. The aëroplane must be of a military type, and carry an overload. Candidates have also to pass an examination on aëroplane motors.

THE notices of aviation feats and fatalities which appear in the daily Press do not often afford the scientific inquirer much indication of any advances in our knowledge of the principles of mechanical flight. The remarkable glide which Mr. Orville Wright performed on October 24 reminds us that there is still much to be done with gliders, and that flight as a sport does not necessitate a costly motor-driven aëroplane. The glide in question, which lasted about ten minutes, was performed at "Kill Devil Hill" in a wind blowing at about fifty miles an hour. By careful manœuvring Mr. Wright caused the wind to pick him up from the top of a sand dune, and in successive gusts he rose 150 feet, finally gliding to the ground. Mr. Wright stated that he had proved that a man can remain in the air without a motor provided there is sufficient wind. The question which naturally suggests itself is how far this feat was due to upward currents caused by the wind blowing up the sides of the dunes. It is one thing to hover round a hill top under such conditions, but it would be a very different task to make use of Langley's "Internal Work of the Wind" in a flight across a bare plain or over the sea.

IN the House of Commons on Monday, October 30, the Home Secretary was asked whether his attention had been directed to the views expressed by Sir William Ramsay in his presidential address to the British Association concerning the exhaustion of the coalfields of this country, and whether the Government anticipated taking any steps tending to the conservation and lessened waste and export of this source of energy supply, having regard to the extent to which the nation's commercial position and the support of the industrial population were dependent on it. In the course of his reply, Mr. McKenna said:—The president's forecast of the probable duration of the coal supplies of the country does not take into consideration certain factors which have an important bearing on the question. In the first place, the estimate took no account of the large amount of coal in fields unproved at the time of the inquiry of the Royal Commission, nor of the amount of coal lying below the depth of 4000 feet which the commission took to be the present limit of workable coal, but which it may be found possible hereafter to exceed. These two sources the commission estimated at more than 39,000 million and 5000 million tons respectively, or together nearly half as much as the amount of coal estimated to exist in the proved coalfields. In the second place, the estimate was based on the assumption that the output of coal would continue, at any rate for some time, to increase at the same rate as in the past. The commission, on the other hand, considered that at a time not far distant the rate of increase of output would become slower, to be followed by a period of stationary output, and then a gradual decline. The suggestion which Sir William Ramsay is reported to have made, that Parliament should impose a penalty on wasteful expenditure of energy supplies, would involve an amount of control over the industries of the country which, under present conditions, it would be impossible for any Government to undertake. The commission looked forward to the introduction of considerable economies in the future; and I am advised that both in the working and in the using of coal progress is being made in this direction.

M. HENRI MARTIN presented to the Paris Academy of Sciences on October 16 a note on the skeleton of Neanderthal man discovered by him at Quina, in the department of Charente, during September last. This is the fourth find of Neanderthal man which has been made in the south-west of France during the last four years. Former discoveries were made in the valley of the Dordogne, or of its tributary the Vézère, while the present has been made in the valley of a tributary of the Charente, fifty miles further to the north. The stratum of sandy clay in which the skeleton was found is regarded by M. Martin as a former bed of the adjacent stream, and as corresponding in date to the lower strata of the Middle Quaternary deposits. In former discoveries of this nature there was evidence that the remains had been buried or been naturally entombed, but in the present case the evidence points to the remains having been embedded during the formation of the deposit in which it was found. In the same stratum were found flint and bone implements, which M. Martin ascribes to the older Mousterian civilisation. The teeth are very similar in character to those found recently in a cave in Jersey, and described in the current issue of *The Journal of Anatomy and Physiology* by Messrs. Keith and Knowles. The skull, which has become broken along the sutural lines, is said to show the well-known characters of the Neanderthal race in a very pronounced degree. The remains of the skeleton have been transported to Paris still embedded in the blocks of loam in which they were discovered, and will ultimately be added to the collection in the Muséum d'Histoire naturelle.

AGRICULTURISTS will regret to learn that M. Gaston Gautier recently died at Narbonne, at seventy years of age. M. Gautier, who was brother of M. Armand Gautier, president of the Academy of Sciences, was a member of the Société de botanique de France, and had published several botanical memoirs. But his great claim to fame is that he introduced the culture of the vine into a region that had been little better than a huge pestilential swamp round Narbonne. The first efforts at reclamation were made on his own estate of Craboules, and finally met with such success that many of his neighbours followed his example; by degrees the swamp gave way to fruitful vineyards.

THE death is announced, at ninety years of age, of Mr. John C. Fuller, whose name is familiar to electricians in connection with the Fuller bichromate battery. A correspondent of *The Times* points out that Mr. Fuller was at one time an assistant of Faraday. He joined the Electrical and International Telegraph Company in 1854, and during his connection with it worked with Latimer Clark and Sir William Preece. One of the results of Mr. Fuller's early studies was the invention of the universal battery system, by which one set of cells works a whole group of circuits. He invented several other forms of battery. About 1857 he assisted Messrs. Silver and Co. (the founders of the India-rubber, Guttapercha, and Telegraph Works Company) in applying indiarubber to telegraph purposes. Here he designed the machines and methods for covering wire and made vulcanite insulators. Later, before founding his own firm, Messrs. John C. Fuller and Son, he assisted Mr. W. T. Henley, the submarine cable manufacturer. At this time he invented and patented the mercury bichromate battery.

IT is with deep regret that we learn of the premature death, at fifty-four years of age, of Prof. Alfred Binet. Prof. Binet was director of the laboratory of physiological psychology at the Sorbonne, and was very well known among psychologists—above all as an ardent investigator of the first rank into problems of child psychology. He founded "L'Année Psychologique" in 1897, in which appeared, year by year, highly important articles from his own pen. Among many well-known books of his upon psychological topics may be especially mentioned "L'Étude Expérimentale de l'Intelligence," "La Suggestibilité," "L'Âme et le Corps," and "Les Idées modernes sur les Enfants" (his latest publication). The science of psychology has suffered a severe loss in his death.

THE annual Huxley memorial lecture of the Royal Anthropological Institute will be delivered on Thursday, November 23, in the theatre of the Civil Service Commission, Burlington Gardens, S.W., by Prof. F. von Luschan, whose address will be on "The Early Inhabitants of Western Asia." Mr. Alfred P. Maudslay, president of the institute, will occupy the chair.

THE council of the Institution of Civil Engineers has made the following awards in respect of papers published in Section ii. of the Proceedings for the session 1910–11:—Telford premiums to Messrs. S. M. Dixon, H. J. F. Gourley, J. Holden, A. Rogers, A. E. Griffin, Dr. F. C. Lea; and a Crampton prize to Prof. W. E. Dalby. The Indian premium for 1911 has been awarded to Mr. C. E. Capito, and the Webb prize to Mr. F. W. Bach.

THE list of lectures to be given on Mondays and Thursdays during the present session at the London Institution, Finsbury Circus, London, E.C., has been circulated. Among the numerous subjects of interest to be dealt with in the lectures we notice the origin of life question, by Dr. H. C. Bastian, F.R.S.; life on the high mountains of Mexico, by Dr. H. F. Gadow, F.R.S.; man under the microscope, by Dr. Alex. Hill; storm rains, by Dr. H. R. Mill; alchemy, by Mr. M. M. Pattison Muir; and waves of the sea, by Dr. Vaughan Cornish.

AT the meeting of the London Section of the Society of Chemical Industry, to be held on Monday, November 6, at Burlington House, Dr. E. G. Acheson, of New York, will read a paper on deflocculation as affecting lubrication. Dr. Acheson is well known as the inventor of lubricants consisting of deflocculated graphite—"Aquadag" and "Oildag" of carborundum, &c. The paper should be of interest to all who are concerned with lubrication and lubricants. Dr. Acheson will also give an address to the Faraday Society on Wednesday, November 8. Non-members of the society will be admitted by ticket, to be obtained upon application to the Secretary, 82 Victoria Street, S.W.

The council of the Royal Institute of Public Health has accepted an invitation from the Chief Burgomaster of Berlin to hold the congress next year in that city on July 25–28. The congress will include the following sections and presidents:—State medicine, Sir T. Clifford Allbutt, K.C.B., F.R.S.; bacteriology and comparative pathology, Prof. G. Sims Woodhead; child study and school hygiene, Sir James Crichton-Browne, F.R.S.; military, colonial, and naval, Major Sir Ronald Ross, K.C.B., F.R.S.; and municipal engineering, architecture, and town planning, Mr. P. C. Cowan. Facilities will be afforded for visiting the various public health and educational institutions in Berlin in connection with the Imperial Board of Health, the Municipality, and the University.

In connection with the 200th anniversary of the foundation of the Spalding Gentlemen's Society, in 1709, the society has recently built a home for its library and museum, which also includes a magnificent lecture theatre, committee rooms, &c. The new building was opened on October 25 by Sir Henry H. Howorth, K.C.I.E., F.R.S., who referred to the extraordinary fact that a society should have carried on its work for two centuries and should then be in a position to purchase a building for its treasures. In the evening there was a public lecture on "The Romans in Lincolnshire," by Mr. T. Sheppard, in which he described many thousand relics of the Roman period, now in the museum at Hull, from a little-known site on the north Lincolnshire coast. Sir Harry Howorth occupied the chair. During the day Mr. Sheppard also gave an address on the use and value of local museums.

In *The Quarterly Review* for October M. Salomon Reinach reviews the present condition and progress of mythological study. He shows how the earlier explanations of myths suggested by writers like Fontenelle, De Brosses, David Hume, and Dupuis gave way before the researches of Grimm and Mannhardt, to be succeeded by the theories of Kuhn and Max Müller. These last, in their turn, were superseded by the anthropological school, under the leadership of "that wittiest of scholars and most scholarly of wits," Mr. Andrew Lang. This revolt against the philologists was largely due to the advance in the knowledge of philology, which no longer accepts the identifications of the names of many Greek and Roman deities with those of India advanced by Max Müller himself and extended by his more ardent followers, like De Gubernatis and Sir G. Cox. It was also the result of the colonial policy of England which tended to extend the horizon of research from Aryan gods to the mythologies of savage races. The methods of the anthropological school were still further extended by W. Robertson Smith and J. G. Frazer. But the views of these last authorities are already disputed by the psychologists and sociologists. M. Reinach closes his instructive survey of the situation by the remark that "underlying and stimulating the work of criticism, as applied to the chief results of the anthropological school, I see, at all events in my own country, the ever-active upholders of tradition and established creeds."

At a meeting held in Norwich on October 26, 1908, a society was established for the study of prehistoric archæology, especially with reference to the eastern counties, and shortly afterwards it adopted the title of "The Prehistoric Society of East Anglia." We have lately received the first part of its Proceedings, an octavo of 121 pages, containing a report of the work of the first two sessions, with several original papers printed in full. In a communication on the flint implements of sub-crag man, Mr. J. Reid Moir describes his well-known discovery of flints, reputed to have been worked by man, in deposits that, in some cases, are admitted by distinguished geologists to be undisturbed Red Crag. Dr. W. Allen Sturge, M.V.O., the first president of the society, contributes not only an appropriate inaugural address, but also a rather voluminous paper on the chronology of the Stone age. Although the views expressed in this paper are based to a large extent on the study of his extensive collection at Icklingham Hall, in Suffolk, as well as on local field-work, they are likely to evoke no little opposition, both from the geological and the archæological sides. The superficial scratches on many worked flints of Neolithic age he refers to glacial action, and thence concludes that an ice period, with several phases, must have occurred in Britain since the incoming of Neolithic man. Similar evidence in the case of certain palæoliths is accepted as proof of at least one Glacial period during Palæolithic times. Dr. Sturge ventures to suggest that the Neolithic age may have begun about 300,000 years ago, and the Palæolithic perhaps a million years ago. In forming these startling conclusions, he relies on Croll's hypothesis, which, although abandoned by most geologists, he does not admit to have been yet disproved.

Naturen for October contains an article by Prof. A. W. Brogger on prehistoric stone implements, the rock-shelters where some of them were found, and the remains of mammals and birds by which they were accompanied.

According to the report of the New Zealand Scenery Preservation Board for 1910–11, a total of 25,442 acres was reserved during the year under review, this bringing up the total of the reserved areas to 65,989 acres. It is pointed out "that by virtue of past legislation all scenic reserves and national parks in New Zealand are practically sanctuaries for the native birds and game, and no shooting or killing whatever is permitted on them. The greatest care is taken to keep them free from noxious weeds, and wherever practicable and advisable the fencing of the external boundaries has been proceeded with, particularly when the reserve adjoins settled land or a road in general use."

In *Himmel und Erde* for October (Jahrg. 24, Heft 1) M. Ficker contributes the first of a series of popular articles on the bacteria as the friends and foes of man. After a brief historical introduction, the classification and structure of the bacteria are considered, with illustrative figures.

A Bulletin (No. 146) has been issued by the Agricultural Experiment Station of the Rhode Island State College, U.S.A., on the cholera-like diseases occurring among poultry. It is shown that, in addition to the well-known micro-organism of chicken cholera, first studied by Pasteur and Toussaint, several other microbes cause similar diseases among poultry, some of which possess extreme power of infecting.

Botanists engaged in systematic work, or interested therein, will find in the catalogue No. 22, "Botanica Geographica," issued by Messrs. Dulau and Co., Soho Square, London, an extensive assortment of second-hand literature offered for sale. The items are most numerous under the sections devoted to Europe and North America; contributions to the botany of Africa are also well represented.

A second contribution to their studies of Indian fibre plants, prepared conjointly by Mr. and Mrs. A. Howard, deals with *Hibiscus cannabinus*, popularly known as Deccan or ambari hemp, and *H. Sabdariffa*, the Rozelle plant; it is published in the Memoirs of the Department of Agriculture in India as vol. iv., No. 2, of the botanical series. The investigation was primarily directed towards analysing the ordinary crops with the view of eliminating cross-fertilisation and securing uniformity of product. Five varieties, showing differences in the seedling and early vegetative stages, were isolated; descriptions of these and coloured figures are supplied. Two of the types are regarded as specially promising, and it is intended to develop these by pure-line cultures. The account of *H. Sabdariffa* is confined to comparative notes on pollination and the descriptions of four varieties.

THE interesting chapter on the history of fossil botany, chosen by Dr. D. H. Scott as the subject of his presidential address to the Linnean Society at the close of the last session, dates back three-quarters of a century, to a time when Witham in England and Cotta in Germany were prominent investigators, and the more illustrious Brongniart was engaged upon his earlier researches. Morphological elucidation was the guiding principle of Brongniart's studies, and in most cases he found it necessary to discover the required morphological data himself. His "Histoire des Végétaux Fossiles" contains in the introduction a definite recognition of four successive geological periods characterised by different types of vegetation. Witham's chief service was to demonstrate the early prevalence of gymnosperms, and he was also the first to describe the structure of the historic fossil *Lepidodendron Harcourtii*, although it remained for Brongniart to identify the ring of wood. To Cotta credit is due for the foundation of the genus Medullosa, and a virtual recognition of its polystelic character.

IN the *Naturwissenschaftliche Wochenschrift* for October 1 there is an article on the geological study of earthquakes, by Dr. Erwin Scheu, whose name is well known in connection with catalogues published by the International Association at Strassburg. The article deals with macroseisms, or earthquakes which can be felt. The intensities of these should be referred to a scale; but as seismologists are already troubled with sixteen different scales of intensity, it is not clear why Dr. Scheu should add to their number. He, however, suggests one which, he remarks, might be suitable for Europe, but hardly suitable for the tropics. An earthquake which is not felt should, according to the new scale, be indicated by the numeral I, whilst one accompanied by complete destruction, which refers to a megaseism rather than a micro- or macroseism, has an intensity of VII. In a map of isoseists for the earthquake of Jókeö, January, 1906, some of them are, however, marked VIII and IX. In connection with the construction of isoseists, we are told that the intensity of movement exhibited in hard rocks like granite is greater than it is in materials like marl and clay. So far as destructivity is concerned, our impression has been that this is generally the reverse. The influence of fault lines, as, for example, those in the Rhine Valley and mountain ranges, upon the distance to which earthquake motion may be propagated is pointed out. Illustrations are given of the destruction caused to buildings, and the displacements, vertical and otherwise, of land surfaces. Dr. Scheu's article is distinctly popular, and as such suggests phenomena to be observed at the time and after the occurrence of an earthquake.

THE meteorological charts of the North Atlantic and Mediterranean for November, issued by authority of the Meteorological Committee, contain an instructive account of the behaviour of a heavy storm in the North Sea, illustrated by synoptic charts. Between September 28 and 29 a small cyclonic system seems to have formed near 50° N. and 30° W.; on the morning of September 29 the chart for that day shows that the centre was about 57° N. and 25° W., and was advancing towards the coast of Ireland, increasing in velocity and intensity as it travelled eastwards. On the morning of September 30 the centre was near Spurn Head; during the gale an extreme force of 10 (Beaufort scale) was recorded at several stations on the East Coast, and at 6h. p.m. the centre passed over the north of Holland. An interesting point in this storm is that apparently the wind force experienced by vessels in the North Sea was greater than that at many of the land stations in telegraphic communication with the Meteorological Office. The numerous casualties to shipping would also seem to show that the high seas must have been exceptional.

IN *Symons's Meteorological Magazine* for October Mr. W. Sedgwick continues his interesting notes on the weather in the seventeenth century: part iii., autumn (see NATURE, June 1). He points out that at this season of the year such phenomena as heat waves, severe frosts, &c., are not likely to occur, at any rate near London. It is not surprising, therefore, that Evelyn and Pepys made fewer comments than in the case of the other seasons. To those who still firmly believe that the climate of England has changed, the month of October presents special interest, owing to the comparatively high temperatures experienced in that month in recent years. In a paper read before the Royal Meteorological Society on April 19, on variations in English climate, it was shown that for the last fourteen years (1897–1910), except only in 1905, the temperature was above the average in October. So far as can be judged from the chronicles above referred to, this variation in recent years is merely a periodic change, as they do not show that the weather of that month was noticeably colder than at the present time. Frequent references are made to the pleasant weather experienced; only one October (1692) was referred to as a cold month; Pepys described that of 1668 as "the most summer weather that was ever seen." The general character of the weather in November also, as described by Evelyn, was very similar to that of the present time.

IN a paper by Prof. Henry Louis on the mutual developments of metallurgy and engineering, read before the University of Durham Philosophical Society, and published recently in its Proceedings, much interesting information is given about the history of metallurgical processes. It seems to be fully proved that the Assyrians were not only well acquainted with iron, but had attained some considerable skill in its manufacture, having advanced far enough to make chain mail; thus, so far back as 900 B.C., iron manufacture had long passed the rudimentary stages. The only other common metals known to the ancients were lead, copper, and tin, all of which are easily reduced from their ores; brass was known for a very long time before it was discovered that zinc was one of its constituents, it being always made direct from zinc ore; Roman brass coins have been analysed, and found to contain more than 25 per cent. of zinc, so that the material was certainly known to them, although they did not know its true composition. The metallurgy of lead was relatively far advanced; quite a number of pieces of lead of Roman age have been found in this country, the earliest date about 44 A.D., and several of these are marked "EX. ARG.," or desilverised; it is also evident from the composition of articles of Roman lead that the metallurgists of that day were tolerably well advanced with their methods of desilverisation.

The Electrical Review for October 13 discusses in a leading article the question as to whether there is or is not at the present time a demand for technical men in the electrical engineering profession. After reviewing the evidence afforded by recent letters to the Press, it concludes that the overcrowding of which there have been complaints is confined to the lower branches, and that it is due to the large class of men who have had no technical training. While the general impression that the profession was overcrowded has led to a decrease in the entries of students in the electrical engineering colleges, a decrease which has now gone on for several years, there is to-day, as a matter of fact, a greater demand for technically trained men than the colleges can supply.

IN order to clear up the small differences which still exist in the determinations of the melting points of metals like zinc and cadmium by even the most accurate observers, Drs. Holborn and Henning, of the Reichsanstalt, have compared together a number of platinum thermometers and two constant-volume gas thermometers of Jena glass 59 III., and of quartz glass filled in turn with nitrogen, hydrogen, and helium. Both the Jena and the quartz glass were slightly porous to the helium above 200° C., but the former showed no signs of being permeable to hydrogen up to 450° C. The constant δ of the platinum thermometers lay between 1·486 and 1·510, but in no case did the temperature between 200° and 450° C. determined by the platinum thermometers with the use of the δ formula differ by 0·1° C. from the temperature given by the gas thermometers. The following melting and boiling points were obtained:—tin, 231·8°; cadmium, 320·9°; zinc, 419·4°; naphthalene, 217·96°; benzophenone, 305·89°, on the thermodynamic scale.

FURS which are moth-proof owing to the substitution of indiarubber for animal tissues would seem at first sight to be a fantastic stretch of the imagination only. A curious invention recently recorded, however, would appear to render rubber-backed fur a possible and practical article of the near future. Large skins, or small pelts sewn together, are stretched upon a frame with the fur uppermost in a large flat-bottomed receptacle, which is then filled with water and placed in a freezing chamber. The plate of ice is then removed, and with suitable machinery a thin layer is sawn from the bottom, thus removing the skin, which after thawing is sold for the purposes of leather. The lower surface of the remaining plate is then melted until the fur is slightly exposed, when a coating of rubber solution is applied layer by layer. When the requisite thickness is obtained the rest of the plate containing the fur is melted, and a large seamless pelt, with a sheet of rubber at its base, is the result. Cheapness is one of the many advantages claimed by the inventor. Ladies with valuable furs, which annually cost a considerable sum for cold storage, will wish every success for so ingenious an invention.

SOME interesting observations regarding the formation of hydrocyanic acid during the germination of seeds are contained in a paper by C. Ravenna and M. Zamorani in the *Gazzetta Chimica Italiana* for September 19 (vol. xli., ii., p. 74). The old experiments of Jorissen and the more recent ones of Soave have shown that some seeds, such as sweet almonds and the seeds of *Mespilus japonica*, form considerable quantities of hydrogen cyanide at the beginning of active life. On the other hand, the experiments of Guignard with *Phaseolus lunatus* point to a destruction of hydrocyanic acid at the commencement of germination, especially in the case of etiolated plants. The experiments now described were made on two species of seed, viz. *Sorghum vulgare*, which does not contain appreciable traces of hydrogen cyanide, and a variety of linseed, which contained it in considerable proportion. In the case of the former, hydrogen cyanide was elaborated during germination up to a certain point, beyond which it appeared to undergo progressive destruction; in the latter case a continuous increase of hydrogen cyanide was observed without a point of decomposition being attained. In all cases the rate of production of the cyanide was greater in the green than in the etiolated plants; but on watering the latter with a 2 per cent. solution of glucose during growth, the proportion of hydrogen cyanide formed was increased up to the level of the green plants. The amount of carbohydrates in the seed thus greatly affects the formation of the hydrocyanic acid. The source of the nitrogen remains to be investigated.

THE council of the Institute of Chemistry has inaugurated a series of lectures, the first of which was delivered by Mr. Bertram Blount at King's College on October 26. The chair was taken by Prof. J. Millar Thomson, F.R.S., who said the lectures were an extension of the work of the institute on lines directed to benefit advanced students of chemistry. Except for one or two lectures delivered in its early history, the institute has not assumed in any way the functions of a teaching body, though the charter provides for such functions. Mr. Blount limited his remarks to calcareous cements, and more particularly to the Portland cement industry. Calcareous cements, properly so called, while being plastic, are capable of hardening and are resistant to water. The common fallacy, that the setting of lime mortar is due to the action of lime on the sand with which it is mixed, was once more exploded. Some siliceous materials have an advantage over others as aggregates for mortar. These are known generally as "pozzolanas," and their usefulness depends on the hydrated silica or attackable silicates they contain, which interact with lime and form compounds resistant to the action of water. There seems to be no record that limestones were intelligently chosen for the hydraulic quality of the lime which they furnished until the time of Smeaton, who, in considering with what material he should build the Eddystone Lighthouse, ascertained that Aberthaw limestone was undoubtedly hydraulic. Those limestones which are most hydraulic contain the largest proportion of argillaceous material. This quality may be improved by the addition of what is capable of conferring hydraulic properties on ordinary lime. Mr. Blount also discussed the manufacture of so-called "Roman cement," a crude form of Portland cement made by burning lumps of clayey limestone. Starting with the notion of imitating Roman cement, the progenitors of the Portland cement industry arrived at the idea that when chalk and clay were mixed and burned an hydraulic material was produced which, when ground, would set and form a strong, sound cement.

OUR ASTRONOMICAL COLUMN.

ASTRONOMICAL OCCURRENCES FOR NOVEMBER:—

Nov. 6. 3h. 37m. Moon eclipsed, partly visible at Greenwich.
,, 12h. 11m. Saturn in conjunction with the Moon (Saturn 4° 18′ S.).
7. 7h. 19m. Mercury in conjunction with Jupiter (Mercury 1° 50′ S.).
,, 20h. 50m. Mars in conjunction with the Moon (Mars 2° 53′ S.).
9. 18h. 0m. Saturn at opposition to the Sun.
10. 21h. 31m. Neptune in conjunction with the Moon (Neptune 5° 52′ S.).